

Claims

1. A fuel injector for internal combustion engines, having a high-pressure fuel reservoir (5), which includes a pressure booster (8) and an injection valve member (10) that has at least one booster portion (11) and one needle portion (13) that closes at least one injection opening (16), characterized in that the pressure booster (8) is received in a booster housing (9) and is braced on a spring element (27) which surrounds the booster housing (9), as a result of which the booster housing (9) is fixed on a nozzle housing part (15) that encloses the injection valve member (10).
2. The fuel injector according to claim 1, characterized in that the booster housing (9) is enclosed by an injector housing part (14).
3. The fuel injector according to claim 1 or 2, characterized in that the fuel injector (1) is triggered by a piezoelectric actuator (43).
4. The fuel injector according to claim 3, characterized in that the piezoelectric actuator (43) acts directly on an upper end face (42) of the pressure booster (8).
5. The fuel injector according to one of claims 1 through 4, characterized in that the booster portion (11) of the injection valve member (10) is enclosed by a sleeve (19).
6. The fuel injector according to claim 5, characterized in that the sleeve (19) laterally defines and seals off a booster chamber (20).

7. The fuel injector according to claim 6, characterized in that the booster chamber (20) is defined on two diametrically opposite sides by a lower end face (47) of the pressure booster (8) and by an end face (48) of the booster portion (11) of the injection valve member (10).
8. The fuel injector according to claim 6, characterized in that the sleeve (19) has a bite edge (21), which is pressed, by means of a spring element (24) surrounding the booster portion (11) of the injection valve member (10), against a shoulder (22) of the booster housing (9) and thus forms a pressure-tight lateral boundary of the booster chamber (20).
9. The fuel injector according to one of claims 1 through 8, characterized in that the injection valve member (10) includes a guide portion (12) having at least one ground and polished surface (40).
10. The fuel injector according to claim 9, characterized in that the guide portion (12) of the injection valve member (10) is guided in a needle guide (18) in the nozzle housing part (15).
11. The fuel injector according to one of claims 1 through 10, characterized in that the booster housing is guided with a step (28) in the injector housing part (14).
12. The fuel injector according to one of claims 1 through 11, characterized in that a first spring chamber (32), surrounding the booster housing (9), and a second spring

chamber (39), surrounding the booster portion (11) of the injection valve member (10), communicate hydraulically with one another through at least one groove (34) in the step (28), an annular gap (36), and grooves (35) in the nozzle housing part (15).

13. The fuel injector according to one of claims 1 through 12, characterized in that a pressure chamber (41) surrounding the needle portion (13) of the injection valve member (10) and the second spring chamber (39) surrounding the booster portion (11) of the injection valve member (10) communicate hydraulically with one another by means of the at least one ground and polished surface (40) in the guide portion (12) of the injection valve member (10).

14. The fuel injector according to one of claims 1 through 13, characterized in that system pressure prevails in the first spring chamber (32), in the second spring chamber (39), and in the pressure chamber (41).

15. The fuel injector according to one of claims 1 through 14, characterized in that the booster chamber (20) is supplied with fuel by reference leakage between the sleeve (19) and the booster portion (11) of the injection valve member (10), and between the booster housing (9) and the pressure booster (8).